

64

GRAPHIC
SCREEN
EXPORTER

UNIVERSAL GRAPHIC CONVERTER

CONVERTS ANYTHING TO ANYTHING

KOALA
PAINT MAGIC
BLAZING PADDLES
SORCERER'S APPRENTICE
SCREEN MAGIC
CAD GEM
MOVIE MAKER
MICRON EYE
FLEXIDRAW
DOODLE
CBM PRINT SHOP
NON-CBM PRINT SHOP
MICRO ILLUSTRATOR
COMAL
LOGO

KOALA
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MICRON EYE
FLEXIDRAW
DOODLE
CBM PRINT SHOP
NON-CBM PRINT SHOP
MICRO ILLUSTRATOR
COMAL
LOGO

UNIVERSAL

PROGRAM BY EVELYN ROSA
DESIGN BY NESLEY JAMES
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Graphic Screen Exporter

PREFACE

When I first got my COMMODORE 64 the only available graphics software was SORCEROR'S APPRENTICE. Then came DOODLE, KOALA PAINTER, PAINT MAGIC and so on. In between the graphic programs where graphic extensions to Basic. Some were good, some where bad. The problem I ran into was how to get my good pictures out of the bad programs.

I got hold of a machine language monitor and went searching for my pictures in memory. At first it was difficult but, as time went on I came to be able to recognize pictures using the Interrogate command in the monitor. Still, it was always a tedious job to find the load address, load the monitor, load the picture file, transfer parts of the file to where I needed them, add missing sections and save the files.

I decided to sit down and write a program to do all this. The first version of EXPORTER came into existence. It was called CONVERTER back then and the only thing it could do was convert pictures to DOODLE. That was sufficient at the time. As more Graphics packages came to market, however, I found myself back in the monitor.

Fortunately, by the time I was ready to write the next version I had learned some PDL. PDL, which stands for Program Development Language is both a language and development procedure. With PDL and the help of it's creator, Wesley James, we were able to come up with the best algorithm and program structure possible. PDL also produced most, if not all, of the documentation that comes with the program. Source listings of the BASIC and ML routines used in the program were also produced during the "PDL'ing" of the program. All of this information is available to any registered owner who is interested. To obtain this information write to MIT/COMPUTER TOOLS DIV. requesting the additional documentation and include a stamped self addressed envelope. The postage is 56 cents.

In any case, this program, in a sense, unites all the existing graphics programs and graphics extensions. It, therefore, effectively unites all of us. We at MIT/COMPUTERS TOOLS would like to here from you. Write (or call) and let us know what uses you have come up with for EXPORTER. Or, if you need information on how to get EXPORTER to do more, feel free to contact us. It is our hope that by providing this service we may be able to start a graphics oriented newsletter. This newsletter would contain tips and tricks from you, the users, and us as both developers and users on how to get the most out of the existing graphic packages in conjunction with GRAPHIC SCREEN EXPORTER 64. I'll give you an inside scoop, if you let us know about other things you'd like a graphics package to do we may, be able to, include them in a system we're developing called THE DREAM GRAPHICS SYSTEM.

EVELYN ROSA
New York, NY, Sept. 1985

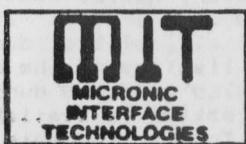
Graphic Screen Exporter

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Graphic Screen Exporter

GETTING STARTED

Place the EXPORTER disk in the drive. Make sure the disk drive door is in the closed position.

Type: LOAD"EXPORTER",8,1

When prompted place the disk which contains the file you wish to convert into the drive and press the space bar. The directory of the disk will be displayed 15 lines at a time.

If there are more than 15 entries press any key except the space bar. Press the space bar to make a selection.

Type in the name of the file and press <RETURN>, or press the <CTRL> key and 'C' to abort.

NOTE: For KOALA files a minimum of 7 characters must be typed.
EXAMPLE: "?PIC A "

INCOMING FILES

If EXPORTER does not recognize the file type it will ask you which type it is. Use the cursor keys to move to your selection and then press <RETURN>.

NEW FORMATS

EXPORTER will now ask you which file type you wish to convert to. Use the cursor keys to move to your selection and then press <RETURN>. The next prompt will ask you if you wish to erase the color and bit map information already in memory. If you are not sure simply hit the <RETURN> key.

Once the file has been loaded you can view it, alter it, change the colors, or flip back and forth between Hi-res and Multicolor modes. If the border is black you are in Hi-res Mode and if the border is white you are in Multicolor Mode

NOTE: Flipping from Hi-res to Multicolor and back will not effect the final file format.

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HI-RES TO MULTICOLOR

In the case of Hi-res to Multicolor conversions (ie: Doodle to Koala), there are two methods that can be used to optimize resolution.

1. If the picture was done in only two colors, page and pixel color, then two things need be done, shift and adjust. ADJUST will double all lit pixels that are not already paired. All '01' and '10' pixel combinations will become '11'. This means that in Multicolor Mode all pixels will get their color from color ram which is register #4. This leaves registers #2 and #3 for further color addition. Using the cursor keys to shift the bitmap left and/or right before you adjust will re-align the pixels. Experiment shifting and adjusting until you get the best picture.

2. If the Hi-res picture has several colors in it then these colors must be preserved. In order to do this you must transfer the color information to the proper areas of memory were Multicolor Mode can display them. This requires three steps;

- 1)<N> - PHOTO NEGATIVE the bitmap
- 2)<C> - transfer Hi-res pixel color to Multicolor #4 (color ram)
- 3)<D> - change all unset pixel pairs ('00') to register #2 ('01')

When you have done all three the colors will be in registers #2 (Hi-res background colors) and #4 (Hi-res pixel colors). This leaves you with registers #1 and #3 to add any additional colors without conflicting with existing ones

BRINGING IN OTHER FILE TYPES

FLEXIDRAW & LOGO SCREENS: Bring in the bitmaps as PS-Screen Magic files and if there are color files abort the save by pressing <CTRL-C> and bring in the color files as if they were Doodle files. DO NOT ERASE color and bitmap memory.

FONTS: Bring in any font that is in the same format as the normal CBM character set as a PS-Screen Magic file.

COMPUTEREYES: Standard Files may be brought in as PS-Screen Magic files.

Several other formats are possible.

MORPHOS standard graphics file formats are supported.

Screen dump files (*.SDP) can be read in as PS-Screen Magic files.

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UNIVERSAL

To convert picture files that are not in the same format as any of the ones provided, choose UNIVERSAL as the format.

When you choose UNIVERSAL, EXPORTER will ask you a series of questions about the contents of the picture file. Be prepared to answer the following questions:

1. Is the picture MULTICOLOR or HI-RES?

2. How many bytes long are each of the sections that make up the picture file?

-Bitmap, Screen Ram, Color Ram, and Extra bytes

BITMAP: This section can be no more than 8192 bytes long. If you enter a length less than 8000 you will be asked whether the missing bytes are at the beginning or at the end of the bitmap.

SCREEN RAM and COLOR RAM: These sections can be no more than 1024 bytes each. If you specify that they are only one byte long then you must provide their location in the file. In other words, how many bytes from the beginning (first byte) of the file is this byte. In doing this calculation disregard the load address of the file if any.

EXTRA BYTES: These are gap bytes, if any, that a file might have separating any of the other sections.

3. In what order are the sections of the file?

There are six possible sections to a file. These are:

BITMAP	SCREEN COLOR
SCREEN RAM	BORDER COLOR
*COLOR RAM	EXTRA BYTES

* MULTICOLOR only.

4. Is this a PROGRAM or a SEQUENTIAL disk file?

5. PROGRAM files only. What load address should this file have? Use 'FIND ADDR' to get this value from any existing PROGRAM file.

Using this information EXPORTER will calculate seven addresses which will be used throughout the program. It uses them when it

Graphic Screen Exporter

brings in the file, when it arranges the file for display and when it assembles a file to save on the disk. For more information concerning these seven addresses load "-CREATE ADDR" and run it. The instructions will give you a description of each address.

SELF IMPLEMENTING UNIVERSAL

If there is a format that you will be needing frequently, you can bypass all of the questions asked by UNIVERSAL by altering the program itself.

To do this follow the step by step instructions listed below.
NOTE: This method is for PROGRAM files only.

1. Make a backup of the Exporter disk using any file or disk backup program.

2. Load and run EXPORTER

3. Give a name when asked for the file name.

4. Choose Universal as the incoming file type.

5. Answer all questions concerning the file.

6. When asked 'Convert To What Format' press the RUN/STOP key and then move your cursor to the bottom of the screen.

7. Type in the following line without a line number:

FOR I=0 TO 13:PRINT A(12,I):NEXT <RETURN>

8. The stream of numbers that will be printed are the seven addresses in order. Write these 14 numbers down!

9. Type 1260 FT=0 and press <RETURN>

Type 1330 FT=0 and press <RETURN>

10. Save your altered version of EXPORTER to your backup disk as follows:

SAVE "80:EX.PROG",8 <RETURN>

11. Load "-CREATE ADDR",8

12. Type LIST 340-350 and press <RETURN>

14. In place of the 14 zeros in line 350 type in the 14 numbers that were printed using instruction #7. Remember to place commas in between the numbers and don't forget to press the <RETURN> key after making the changes.

15. Save your altered version of "-CREATE ADDR" on your backup disk.

16. Run your altered Version of "-CREATE ADDR".

Now when you run your altered backup of EXPORTER and choose UNIVERSAL it will no longer ask you any of the questions. It will have all the information that it needs already.

Remember never edit lines 340-350 because this would
interfere with some of the programs and the records being read into memory.

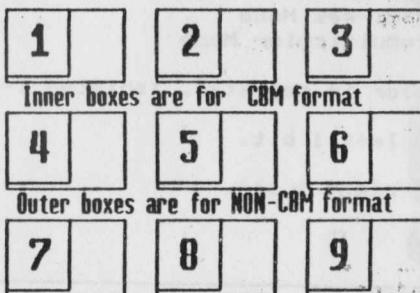
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PRINT SHOP

This format when chosen will allow conversion of CBM and NON-CBM PRINT SHOP graphic stamps. You can even convert CBM to NON-CBM and vice versa.

When you choose this format you will be asked which of the nine available slots you wish the stamp brought into or taken out of. Included on the EXPORTER disk is PS.TEMPLATE which is a PS-SCREEN MAGIC/FLEXIDRAW compatible file which contains the layout of the nine slots. This screen can be used to position the stamps that you wish to create.

Below is an example of the PS.TEMPLATE screen. The boxes are positioned so that their left sides are on the start of an 8 by 8 character column on the screen.



NOTE: When converting stamps to FLEXIDRAW all nine CBM slots may be used, but only the first two columns of NON-CBM slots may be used since FLEXIDRAW allows use of only a 264 by 200 HI-RES screen instead of the normal 320 by 200 screen.

Those who have PAINT MAGIC can convert the template screen and a screen which contains what will become stamps into PAINT MAGIC format. You can then use the MERGE feature in PAINT MAGIC to place your graphics within the positioning boxes on the template screen.

When converting to PAINT MAGIC do not use the ALTER, NEGATIVE or OR options as this will change the appearance of your final stamp.

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COMMANDS IN VIEW MODE

Key	Effect
A	ADJUST bitmap from Hi-res to Multicolor. (pairs all lit pixels)
C	Move Screen Ram to Color Ram (color in reg.3 to reg.4)
H	Return to help screen.
N	PHOTO NEGATIVE of bitmap
O	Change bit pairs for color in register 1 to register 2.
R	RESTORE original bitmap and colors.
F1	Toggle Hi-res and Multicolor Modes. Black border=Hi-res Mode White border=Multicolor Mode
1-4	Increment color in register. (shifted 1-4 decrement color)
CrsrLFT	Shift bitmap left 1 bit.
CrsrRT	Shift bitmap right 1 bit.
RETURN	Save bitmap.

HELPFUL HINTS

To convert other file types not listed in the menu's follow these steps:

- 1) Use 'ADDR FINDER' to get the load address of the file.
- 2) Use the monitor to find out what order the bitmap and color information are in.
- 3) Calculate how many bytes each section takes up.
- 4) Choose the file format(s) most similar to the one(s) you need.
- 5) Make any changes in the load address, file name or file type using 'DISK EDITOR' and 'DOS ENABLE'.

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MANUAL

SECTION

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Graphic Screen Exporter

MACHINE LANGUAGE MONITORS

LOAD MONITORS AS FOLLOWS:

Type: LOAD"MON\$C",8,1 and press <RETURN>
then type SYS49152 <RETURN>

or

Type: LOAD"MON\$8",8,1 and press <RETURN>
then type SYS32768 <RETURN>

DOS ENABLE

To activate DOS ENABLE commands;

Type: LOAD"BOOT DOS",8,1 and press <RETURN>

DISK EDITOR

Activate disk editor as follows:

Type: LOAD"DISK EDITOR",8 and press <RETURN>

Once it has been loaded, insert disk to be edited:

Type: RUN and press <RETURN>

DISK EDITOR has four modes of operation they are: BAM mode, Directory mode, File mode, Edit mode

BAM MODE: If you enter Track 18, Sector 0 (18,0) and answer N to the question, "Do you wish to Edit?" you will be in BAM mode. In BAM mode the map is a graphic representation of the block usage of the disk. Solid yellow areas represent blocks that have not been allocated (unused). The black dots indicate allocated blocks (containing information).

Graphic Screen Exporter

DIRECTORY MODE: Track 1B and any valid sector other than 0 and then N to the Edit question takes you to Directory mode.
Regarding Directory mode the following should explain all:

18 4 (this is the next sector of the directory in decimal
block 0 255 means there are no more)

82 17 00 FILE NAME 9 0

The 82 above is the file type (hex). See DOS FILE TYPES table.
The 17 00 are the track and sector (decimal) in which the file starts.

The file name is self explanatory.

The numbers 9 0 are the size of the file in low byte, high byte order (decimal).

FILE MODE: Any track other than 18 and N to the Edit question puts you in File mode. It displays your selected track and sector as hex values.

EDIT MODE: Answer Y to the Edit question. Once you are in Edit mode you may move the cursor any where on the screen and over-write any character. DO NOT write in any of the blank spaces.

Press **<F1>** to rewrite the current track and sector back onto the disk

HARD COPY: From any of the modes it is possible to get a printout of the screen. When the prompt PRESS ANY KEY appears, type <CTRL-P>, you'll get a direct screen dump.

To quit enter 0,0 as the track and sector.

Graphic Screen Exporter

SYSTEM MEMORY MAPS

HEX	DECIMAL	CONTENTS
0334-0335	820-821	File length
033D	829	Filename length
033E-0355	830-853	Filename
0356-035B	854-859	Machine language routines
035C-035D	860-861	Screen color (reg. #1)/border color
035E-035F	862-863	Color for reg. #3 and #4
0360-0365	864-869	Machine Language Routine
0366-03FB	870-1019	Not Used
0800-54FF	2048-21756	Exporter program space
5500-9FFF	21760-39935	Exporter WORK SPACE
5C00-5FFF	23552-24575	Screen Ram (display)
6000-7FFF	24576-32767	Bitmap (display)
8000-8FFF	32768-36863	Workspace
9000-93FF	36864-37887	Original Color Ram for Restore
9400-97FF	37888-38911	Original Screen Ram for Restore
9800-9BFF	38912-39935	Not used
9C00-9FFF	39936-40959	Machine Language Routines (* see below)
A000-BFFF	40960-49151	Extra Bitmap for Restore/BASIC ROM
C000-CFFF	49152-53247	Not used. 'MON\$C' or 'DOS ENABLE'
D000-D7FF	53240-55295	I/O BLOCK
D800-DBFF	55296-56320	Color Ram Nibbles

(*)-The following chart shows the requirements for using the ML routines located from \$9C00 - \$9FFF

ML ROUTINE REQUIREMENTS

NAME	GO	SYS	REQUIRES
ADJUST	\$9E18	40472.....	Bitmap at \$6000 (24576)
DIRECTORY	\$9C0C	39948.....	OPEN2,B,0,"\$" before calling
EX/OR	\$9F31	40732.....	Bitmap at \$6000 Exclusive OR :value POKE 40762,73:POKE40763,value Logical OR :value POKE 40762,9:POKE 40763,value

Graphit Screen Exporter

ACTIVATION

ML ROUTINE REQUIREMENTS

NAME	GO	SYS	REQUIRES
FILL	\$9C06	39942.....From-\$FD\$8 Length-\$0334, Value-\$FB 253	820 251
LEFT	\$9E1B	40475.....Bitmap at \$6000	
SHIFT			
LOAD	\$9C09	39945.....To-\$FB, Name-\$033E, Name length-\$0334 251	830 820
MEMORY	\$9C03	39939.....From-\$FD, To-\$FB, Length-\$0334	
MOVE		253 251	820
NIBBLE	\$9F2B	40732.....From-\$FD, -VALUE-\$FB 253 251	
FILL		Flag-\$FC (15=high, 240=low) 252	
PHOTO	\$9F31	40753.....Bitmap at \$6000	
NEGATIVE		POKE 40762,73:POKE 40763,255	
RESTORE	\$9E15	40469.....Original bitmap at \$A000 (restores bitmap only)	
RIGHT	\$9E1B	40475.....Bitmap at \$6000	
SHIFT			
SAVE	\$9C00	39936.....From-\$C1, To-\$AE, Name-\$33E-\$34E 193 174 830-846 Name length-\$033E, Load Addr-\$FB 830 251	

NOTE: To, From & Length are two byte values in low byte, high byte order.

Graphic Screen Exporter

MONITOR COMMANDS

COMMAND	FORMAT	DESCRIPTION
ASSEMBLE	.A n1 opcode operand .A 033C LDA #\$FF	Enter a line of assembly code at location n1
COMPARE MEMORY	.C n1 n2 n3 .C 2000 2100 5000	Compare memory from n1 to n2 with memory at n3 and report differences
DISASSEMBLE	.D n1 (n2) .D 2000 2100	Disassemble code starting at n1. Continue to (n2)
FILLER	.F n1 n2 value .F 2000 2100 00	Place 'value' in all locations from n1 to n2.
GO	.G n1 .G 033C	Execute code starting at n1.
HUNT	.H n1 n2 data .H 2000 2100 'text' .H 2000 2100 OF 4C	Search memory from n1 to n2 for data & report their addresses.
INTERROGATE	.I n1 (n2) .I 2000 2100	Display memory from n1 (to n2) as ascii and hex
LOAD	.L "name", D# .L "DDART", 08	Load a file from device, D# at the address specified by the file, name
MEMORY	.M n1 (n2) .M 2000 2100	Display hex values in address n1 (thru n2).
NEW LOCATOR	.N n1 n2 offset .N 2000 2100 0400	Relocate absolute memory references from n1 to n2 by adding an offset
REGISTER	.R	FC = Program counter SR = Status register AC = Accumulator XR/YR = X and Y registers SP = Stack pointer
SAVE	.S "name", D#, n1, n2+1 .S "TEST", 08, 033C, 0400	Save n1 thru n2 to device D# using "name"
TRANSFER	.T n1 n2 n3 .T 6000 8000 4000	Move memory at n1 thru n2 to n3 -

Graphic Screen Exporter

DOS FILE TYPES

Value	High Nibble	State		Low Nibble	Type	
\$00-04	\$0	Unclosed	*	\$0	Deleted	DEL
\$80-84	\$8	Normal		\$1	Sequential	SEQ
\$A0-A4	\$A	@ Replacement		\$2	Program	PRG
\$C0-C4	\$C	Locked	<	\$3	User	USR
				\$4	Relative	REL

DOS ENABLE COMMANDS

	Description
@	Display disk status
@C0:newname=oldname	Copy or concatenate disk file(s)
@I0:	Initialize drive 0
@N0:name,(id)	Rename or format a disk
@O	Kill all DOS ENABLE commands
@R0:newname=oldname	Rename a file
@S0:name	Scratch a file
@S0:n1,n2,n3,n4	Scratch up to 4 files at once
@\$	List directory to screen
@\$0:c1*	List entries starting with the letter c1
@#n	Send all DOS commands to drive #n where n is #8 to 15 inclusive
/name	Load file 'name' (at BASIC)
%name	Load file 'name' (at its load addr)
!name	Load and run file 'name' (at BASIC)
!name	Save a file to disk

Graphic Screen Exporter

STANDARD HI-RES FORMATS

HI-RES FORMATS

Type (# blocks)	Load Addr.	# bytes	Content (in order)
PS-Screen Magic & Flexidraw (32)	\$6000 24576	8192	bitmap only.
Cad Gem (32)	\$6002 24578	7998	bitmap only.
Micron Eye (32)	\$6280 25216	7360	bitmap only.
Doodle (37)	\$5000 23552	1024 8192	screen ram, bitmap.
Print Shop (3), (2)	\$5800 22528	572 288	bit stream (non-CBM only) bit stream (CBM only)
COMAL Hi-res (36)	\$5C17 23575	1 1 1 1000 B000	flag 0=hires screen color border color screen ram bitmap

ADDR FILE FORMAT

Byte	Content (Parameters for all conversions)
0,1	Address used by EXPORTER'S load and save routines.
2,3	Start of Screen Memory
4,5	Start of Color Memory
6,7	Load address file needs
8,9	Location of last byte in file
10,11	Location of Screen color byte
12,13	Location of Border color byte

NOTE: -All values are two bytes in low byte, high byte order.
 -A value of 00 00 indicates the file does not contain or require this information

Graphic Screen Exporter

MULTICOLOR FORMATS

Type (# blocks)	Load Addr	# bytes	Content (in order)
Koala & Super sketch (40)	\$6000 24576	8000 1000 1000 1	bitmap, screen ram, reg. #2, #3 color ram, reg. #4 screen color, reg. #1
Paint Magic (37)	\$5F8E 24462	114 8000 192 1000	ml routine, bitmap, ml & color for reg. #4 screen ram, reg. #2, #3
Blazing Paddles & Sorceror's Apprentice (41)	\$6000 24576	8192 1024 1024 1	bitmap, screen ram, color ram, screen color.
Movie Maker (31)	\$6000 24576	7680 4 1	bitmap, color/reg. #1, #2, #3, #4 border color
COMAL Multicolor (40)	\$582F 22575	1 1 1 1000 1000 8000	Flag 1=multi screen color border color screen ram color ram bitmap
Micro Illustrator	\$5B1C 22556	20 1000 1000 8000	extra bytes screen ram color ram bitmap

HELPFUL HINTS

The number of blocks a picture file takes up on the disk will usually tell you quite a bit about the file's contents.

- If it is 32 blocks or less then it is bitmap information only.
- If it is 36 or 37 blocks then it contains bitmap and color information, but not necessarily in that order. Also, it is most probably a Hi-res picture
- A file 40 blocks long is probably Multicolor, contains 1000 bytes each for color and screen memory and contains 8000 byte of bitmap information
- A file 41 blocks long probably Multicolor, contains 1024 bytes each for color and screen memory and contains 8192 byte of bitmap information

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總發售
7月1日

